INDEX OF VOLUME XX

Agarwal, Arun Kumar. *On the properties of an entire function of two complex variables*, 51–57
Alltop, W. O. *Free planes and collineations*, 1397–1411
Armendariz, E. P. and Leavitt, W. G. *The hereditary property in the lower radical construction*, 474–476
Atkin, A. O. L. *Ramanujan congruences for* $p_{-k}(n)$, 67–78

Baker, Kirby A. *Free vector lattices*, 58–66
Barbeau, Edward J. *Subordinate and pseudo-subordinate semi-algebras*. II, 1242–1245
Barnes, Bruce Alan. *A generalized Fredholm theory for certain maps in the regular representations of an algebra*, 495–504
Baxter, W. E. and Martindale, W. S., III. *Rings with involution and polynomial identities*, 465–473
Behr, H. and Mennicke, J. *A presentation of the groups* PSL(2, p), 1432–1438
Beineke, Lowell W. and Guy, Richard K. *The coarseness of the complete graph*, 888–894
Bhagavan, C. S. K. and Nagabhushnam, K. *Non-stationary processes and spectrum*, 1203–1206
Block, Richard E. *On the extensions of Lie algebras*, 1439–1450
Borges, Carlos J. R. *On metrizability of topological spaces*, 795–804
Botta, Peter. *Linear transformation on matrices: The invariance of a class of general matrix functions*. II, 739–748
Bouwer, I. Z. *Standard representations of simple Lie algebras*, 344–361
Brooks, R. M. *On the invariance of the spectrum in locally m-convex algebras*, 658–664
Brown, Arlen and Pearcy, Carl. *Operators of the form* $PAQ - QAP$, 1353–1361
Brown, Gillian M. *A study of tensors which characterize a hypersurface of a Finsler space*, 1025–1036
Brualdi, R. A. *Convex sets of non-negative matrices*, 144–157

Carlson, R. E. and Cullen, C. G. *Commutativity for matrices of quaternions*, 21–24
Clark, W. Edwin. *Generalized radical rings*, 88–94
Clifford, A. H. and Reilly, N. R. *Bisimple inverse semigroups as semigroups of ordered triples*, 25–39
Clunie, J. and Kövari, T. *On integral functions having prescribed asymptotic growth*. II, 7–20
Conrad, Paul. *Lifting disjoint sets in vector lattices*, 1362–1364
Cullen, C. G. and Carlson, R. E. *Commutativity for matrices of quaternions*, 21–24

Davison, T. M. K. *A Tauberian theorem and analogues of the prime number theorem*, 362–367
Dawkins, Brian P. and Halperin, Israel. *The isomorphism of certain continuous rings: Corrigendum and addendum*, 512
Dean, R. A. and Keller, Gordon. *Natural partial orders*, 535–554
Dempster, M. A. H. *On the Gotlieb–Csima time-tabling algorithm*, 103–119
Derzko, N. A. *An integral representation for the product of spectral measures*, 904–912
Dixmier, J. *Sur les espaces localement quasi-compacts*, 1093–1100
Djabali, M. *Anneau de fractions d'un J-anneau*, 182–202

Eakin, Paul M., Jr. and Heinzer, William J. *Some open questions on minimal primes of a Krull domain*, 1261–1264
Ellis, H. W. *Vector lattices with duals of integral type*, 330–343
Ewell, John A. *On the determination of sets by sets of sums of fixed order*, 596–611

Fox, Geoffrey. *Inductive extension of a vector measure under a convergence condition*, 1246–1255
Friesen, Donald K. *Finite rotation groups in low dimensions*, 711–719

Gamelin, T. W. and Voichick, M. *Extreme points in spaces of analytic functions*, 919–928
Gard, J. R. and Johnson, R. D. *Four-dimension equivalences*, 48–50

Garg, K. M. *On asymmetrical derivates of non-differentiable functions*, 135–143
Gaudry, G. I. *Isomorphisms of multiplier algebras*, 1165–1172
Gilmer, Robert. *On a condition of J. Ohm for integral domains*, 970–983
Glauberman, George. *A characteristic subgroup of a p-stable group*, 1101–1135
——— *Correspondences of characters for relatively prime operator groups*, 1465–1488
Goodman, A. W. *The valence of sums and products*, 1173–1177
Goodman, Ruth. *Sets of polynomials orthogonal simultaneously on four ellipses*, 1281–1294
Grace, E. E. *Peripheral covering properties imply covering properties*, 257–263
Graham, R. L. and van Lint, J. H. *On the distribution of nθ modulo* 1, 1020–1024
Grätzer, George. *On polynomial algebras and free algebras*, 575–581
Greiner, Peter C. *Estimates for general coercive boundary problems on a half-space for a class of elliptic partial differential operators*, 679–697
Grillet, Pierre Antoine. *Free* PQ*-algebras*, 582–595
Gross, Fletcher. *Some remarks on groups admitting a fixed-point-free automorphism*, 1300–1307
Gross, Fred. *On factorization of elliptic functions*, 486–494
——— *On the periodicity of compositions of entire functions.* II, 1265–1268
Gudder, Stanley P. *Complete sets of observables and pure states*, 1276–1280
Gupta, N. D. and Newman, M. F. *Engel congruences in groups of prime-power exponent*, 1321–1323
Guy, Richard K. and Beineke, Lowell W. *The coarseness of the complete graph*, 888–894

Hager, Anthony W. and Johnson, Donald G. *A note on certain subalgebras of* $C(\mathfrak{X})$, 389–393
Hallam, T. G. and Komkov, V. *Stability of solutions of ordinary differential equations with respect to a closed set*, 720–726
Halperin, Israel. *von Neumann's manuscript on inductive limits of regular rings*, 477–483
Halperin, Israel and Dawkins, Brian P. *The isomorphism of certain continuous rings: Corrigendum and addendum*, 512
Heinzer, William J. and Eakin, Paul M. *Some open questions on minimal primes of a Krull domain*, 1261–1264
Henstock, Ralph. *A Riemann-type integral of Lebesgue power*, 79–87
Herstein, I. N. *Semi-homomorphisms of groups*, 384–388
Hill, J. D. and Sledd, W. T. *Approximation in bounded summability fields*, 410–415
Hobby, C. *Finite groups with normal normalizers*, 1256–1260
Hoffman, Frederick and Welch, Lloyd, R. *Totally variant sets in finite groups and vector spaces*, 701–710
Hoo, C. S. *Maps which induce the zero map on homotopy*, 759–768
——— *On the homotopy-commutativity of loop-spaces and suspensions*, 1531–1536
Hughes, J. W. B. *A theorem concerning partitions and its consequence in the theory of Lie algebras*, 698–700
Hungerford, Thomas W. *A characterization of the hyperhomology groups of the tensor product*, 505–510

Iltis, Richard. *Some algebraic structure in the dual of a compact group*, 1499–1510
Isaacs, I. M. *Fixed points and characters in groups with non-coprime operator groups*, 1315–1320
Isaacs, I. M. and Passman, D. S. *Groups with relatively few non-linear irreducible characters*, 1451–1458

Janos, Ludvik. *Topological homotheties on compact metrizable spaces*, 1383–1386
——— *Linearization of a contractive homeomorphism*, 1387–1390
Johnsen, E. C. *Special abelian group difference sets*, 1269–1275
Johnson, Donald G. and Hager, Anthony W. *A note on certain subalgebras of* $C(\mathfrak{X})$, 389–393
Johnson, R. D. and Gard, J. R. *Four-dimension equivalences*, 48–50
Jones, William B. and Thron, W. J. *Convergence of continued fractions*, 1037–1055

Kallaher, Michael J. *Reidemeister projective planes*, 1459–1464
Kaufman, Robert. *Problems of measure algebras*, 291–297
Kaul, S. K. *On almost regular homeomorphisms*, 1–6
Kelleher, James J. *On isomorphisms of meromorphic fields*, 1230–1241
Keller, Gordon and Dean, R. A. *Natural partial orders*, 535–554
Kelly, John B. *Products of zero-one matrices*, 298–329
Kerber, Adalbert. *Zur Darstellungstheorie von Kranzprodukten*, 665–672
Klarner, David A. *The number of k-coloured graphs*, 1344–1352

Knopp, Paul and Sinkhorn, Richard. *A note concerning simultaneous integral equations* 855–861
Knuth, Donald E. *Another enumeration of trees*, 1077–1086
Komkov, V. and Hallam, T. G. *Stability of solutions of ordinary differential equations with respect to a closed set*, 720–726
Kövari, T. and Clunie, J. *On integral functions having prescribed asymptotic growth. II*, 7–20
Kruse, Robert L. *Rings in which all subrings are ideals. I*, 862–871
Kwee, B. *Some Tauberian theorems for the logarithmic method of summability*, 1324–1331

Lane N. D. and Singh, K. D. *Union and extension of arcs of cyclic order three*, 629–638
Larman, D. G. *On packings of unequal spheres in R_n*, 967–969
Laudal, Olav Arnfinn. *Projective systems on trees and valuation theory*, 984–1000
Leavitt, W. G. and Armendariz, E. P. *The hereditary property in the lower radical construction*, 474–476
Leduc, P.-Y. *Catégories semi-simples et catégories primitives*, 612–628
Leviatan, D. *Some moment problems in a finite interval*, 960–966
van Lint, J. H. and Graham, R. L. *On the distribution of $n\theta$ modulo 1*, 1020–1024
Lo, C.-Y. *A class of polynomials in self-adjoint operators in spaces with an indefinite metric*, 673–678
Lorimer, P. J. *On S_2-groups and groups of Moebius transformations*, 484–485
Lowenthal, Franklin. *On subsemigroups of the projective group on the line*, 1001–1011
Luther, Norman Y. *A decomposition of measures*, 953–959
Lynn, M. Stuart. *On the diameter of a p-cyclic strongly connected digraph*, 749–755

Maddox, I. J. *Matrix transformations in an incomplete space*, 727–734
Magill, Kenneth D., Jr. *Restrictive semigroups of closed functions*, 1215–1229
Mahowald, Mark. *On the Adams spectral sequence*, 252–256
Majindar, Kulendra N. *On some methods for construction of B.I.B. designs*, 929–938
——— *On spectral properties of matrices with positive characteristic vectors*, 1332–1343
Marcus, Marvin and Pierce, Stephen. *On a combinatorial result of R. A. Brualdi and M. Newman*, 1056–1067
Martindale, W. S., III and Baxter, W. E. *Rings with involution and polynomial identities*, 465–473
McWaters, M. M. *Arcs, semigroups, and hyperspaces*, 1207–1210
Meir, A. *An inclusion theorem for generalized Cesàro and Riesz means*, 735–738
Mennicke, J. and Behr, H. *A presentation of the groups* PSL(2, p), 1432–1438
Menon, M. V. *Matrix links, an extremization problem, and the reduction of a non-negative matrix to one with prescribed row and column sums*, 225–232
Miller, Donald J. *The categorical product of graphs*, 1511–1521
Miller, John D. *A note on involutions with a finite number of fixed points*, 1522–1530
Moon, J. W. *On independent complete subgraphs in a graph*, 95–102
Mueller, Bruno J. *The classification of algebras by dominant dimension*, 398–409

Nagabhushanam, K. and Bhagavan, C. S. K. *Non-stationary processes and spectrum*, 1203–1206
Nanzetta, Philip. *A representation theorem for relatively complemented distributive lattices*, 756–758
Neumann, B. H. *Some remarks on semigroup presentations: Corrigendum and addendum*, 511
Newman, M. F. and Gupta, N. D. *Engel congruences in groups of prime-power exponent*, 1321–1323
Nordgren, Eric A. *Composition operators*, 442–449

Osborn, J. Marshall. *Commutative non-associative algebras and identities of degree four*, 769–794
Osofsky, B. L. *Endomorphism rings of quasi-injective modules*, 895–903

Parthasarathy, K. R. *Enumeration of graphs with given partition*, 40–47
Passman, D. S. and Isaacs, I. M. *Groups with relatively few non-linear irreducible characters*, 1451–1458
Patty, C. W. *Homology of deleted products of contractible 2-dimensional polyhedra. I*, 416–441
——— *Homology of deleted products of contractible 2-dimensional polyhedra. II*, 842–854
Pearcy, Carl and Brown, Arlen. *Operators of the form $PAQ - QAP$*, 1353–1361
Pfeffer, W. F. *On the lower derivate of a set function*, 1489–1498

Pierce, Stephen and Marcus, Marvin. *On a combinatorial result of R. A. Brualdi and M. Newman*, 1056–1067
Poland, John. *Finite groups with a given number of conjugate classes*, 456–464
Pollak, Barth. *Generation of local integral orthogonal groups in characteristic 2*, 1178–1191
Priddis, M. J. M. *An inequality between numerical homotopy invariants*, 1295–1299

Radjavi, Heydar. *Simultaneous unitary invariants for sets of matrices*, 1012–1019
Rajagopalan, M. and Witz, K. G. *On invariant means which are not inverse invariant*, 222–224
Ramirez, Donald E. *The measure algebra as an operator algebra*, 1391–1396
Read, Ronald C. *The use of S-functions in combinatorial analysis*, 808–841
Reilly, N. R. and Clifford, A. H. *Bisimple inverse semigroups as semigroups of ordered triples*, 25–39
Rice, Norman M. *Multiplication in vector lattices*, 1136–1149
Rickart, C. E. *Holomorphic convexity for general function algebras*, 272–290
Rigby, J. F. *Axioms for absolute geometry*, 158–181
Robertson, James B. *Orthogonal decompositions of multivariate weakly stationary stochastic processes*, 368–383
van Rooij, A. C. M. *The lattice of all topologies is complemented*, 805–807
Roy, Ashoke K. *Extreme points and linear isometries of the Banach space of Lipschitz functions*, 1150–1164
Rund, H. *A geometrical theory of multiple integral problems in the calculus of variations*, 639–657
Russo, John P. *Monotone and e-Schauder bases of subspaces*, 233–241

Sallee, G. T. *Polytopes, valuations, and the Euler relation*, 1412–1424
Salomaa, Arto. *On events represented by probabilistic automata of different types*, 242–251
Schmidt, Jürgen. *Direct sums of partial algebras and final algebraic structures*, 872–887
Shapiro, H. L. *Closed maps and paracompact spaces*, 513–519
Shapiro, Harold S. *A class of singular functions*, 1425–1431
Sheehan, J. *The number of graphs with a given automorphism group*, 1068–1076
Singh, K. D. and Lane, N. D. *Union and extension of arcs of cyclic order three*, 629–638
Sinkhorn, Richard and Knopp, Paul. *A note concerning simultaneous integral equations*, 855–861
Sledd, W. T. and Hill, J. D. *Approximation in bounded summability fields*, 410–415
Smith, Harvey A. *Positive functionals and representations of tensor products of symmetric Banach algebras*, 1192–1202
Sobczyk, Andrew. *Graph-colouring and combinatorial numbers*, 520–534
Srinivasacharyulu, K. *On some non-linear problems*, 394–397
Sterling, Nicholas J. *Rings satisfying* $(x, y, z) = (y, z, x)$, 913–918

Tamura, Takayuki. *Maximal or greatest homomorphic images of given type*, 264–271
Thomas, J. Pelham. *Associated regular spaces*, 1087–1092
Thompson, R. C. *Commutators of matrices with prescribed determinant*, 203–221
Thron, W. J. and Jones, William B. *Convergence of continued fractions*, 1037–1055
Ton, Bui An. *Non-local elliptic boundary-value problems*, 1365–1382
Treybig, L. B. *Concerning upper semi-continuous decompositions of* E^n *whose non-degenerate elements are polyhedral arcs or star-like continua*, 1308–1314
Trott, Stanton. *An axiomatic line geometry*, 939–952

Van Lint, J. H. *See* van Lint, J. H.
Van Rooij, A. C. M. *See* van Rooij, A. C. M.
Viswanathan, B. *Generating functions for ultraspherical functions*, 120–134
Voichick, M. and Gamelin, T. W. *Extreme points in spaces of analytic functions*, 919–928

Wallach, Nolan R. *On maximal subsystems of root systems*, 555–574
Warne, R. J. *Extensions of I-bisimple semigroups: Errata*, 511–512
Welch, Lloyd R. and Hoffman, Frederick. *Totally variant sets in finite groups and vector spaces*, 701–710
Whitley, Robert. *The size of the unit sphere*, 450–455
Witz, K. G. and Rajagopalan, M. *On invariant means which are not inverse invariant*, 222–224

Zame, Alan. *Almost convergence and well-distributed sequences*, 1211–1214